

# Multi functional milling cutters

**BXD** a new range of milling cutters for high performance machining of aluminium alloys and heat resistant materials.

Low resistance geometry and inserts with a rigid tool body.

■ High aluminium removal rates of more than 3000 cc/min.

■ **LC15TF**  
New DLC-coated inserts for outstanding aluminium alloy machining performance.



## Insert grades

### LC15TF

Highly wear and fracture resistant micro-grain cemented carbide **TF15** coupled with Mitsubishi's unique, weld resistant DLC (Diamond Like Coating) coating provides better surface finishes and enables stable, high-grade machining without burrs. **LC15TF** for both wet and dry machining.

### TF15

Micro-grain cemented carbide with superior resistance to wear and fracturing. **TF15** ensures stable cutting and efficient machining of aluminium alloy. The special mirror treatment on rake the rake face prevents chip welding for reliability and longer tool life.

### Operational Guidance

Use only prescribed inserts and parts. The maximum guaranteed revolution for safety purposes is determined using ISO 15641:2001

Ensure that the cutter operates under the maximum allowable revolution. We recommend that the balance quality grade (with arbor) conforms to G40 or higher based on "JIS B 0905".

#### Maximum recommended revolutions

Table 1	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
Rpm BXD4000	15000	13500	12000	10500	9500	8500	7500	6500	6000
(min-1) BXD7000		12000	9500						

Please use a special clamping bolt when using an arbor type with through coolant holes.

Always apply the recommended clamp torque values as shown below.

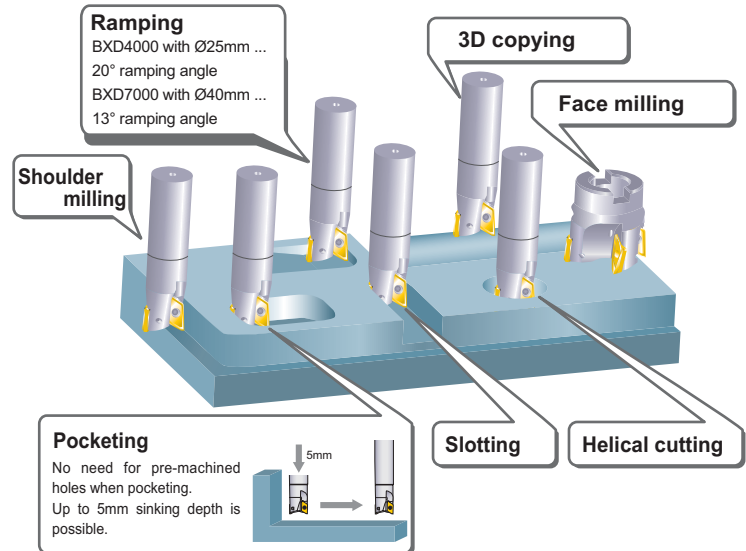
BXD4000 : 4 - 5N·m (41 - 51kgf·cm)  
 BXD7000 : 7 - 8N·m (71 - 82kgf·cm)

### MIRACLE<sup>®</sup> Coated VP15TF

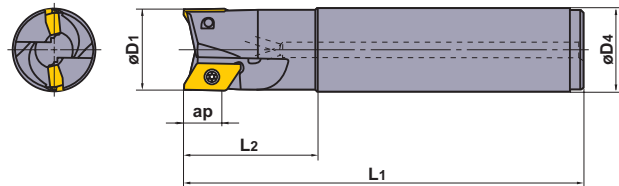
Wear and fracture resistant **TF15** substrate coupled with MIRACLE coating. For high oxidation resistance and adhesion strength to improve tool life on a wide range of difficult to cut materials.

## Multi functional milling

**BXD** for excellent ramping and overall performance.



## Shank type



Right hand tool holder only.

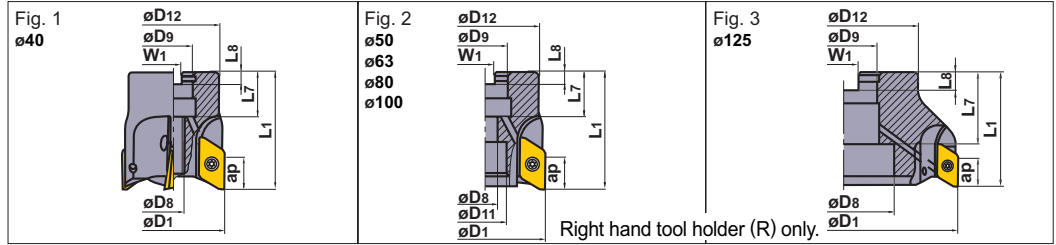
Type	Insert Corner Re	Order Number	Stock Number of teeth	Dimensions (mm)					Ramping Angle (°)	*Max. Allowed Revolution (min <sup>-1</sup> )	Clamp Screw	Wrench	Insert	
				R	D1	ap	L1	L2						D4
BXD4000	A 0.4 3.2	BXD4000R201SA20SA	● 1	20	15	110	35	20	28	15000	TS4SL	①TKY15W	XDGT1550 PDOR-GOO	
		252SA25SA	● 2	25	15	125	50	25	20	38000	TS4SL	①TKY15W		
		252SA25LA	● 2	25	15	170	80	25	20	38000	TS4SL	①TKY15W		
		322SA32SA	● 2	32	15	150	50	32	13	33000	TS4SL	①TKY15W		
		322SA32LA	● 2	32	15	200	80	32	13	33000	TS4SL	①TKY15W		
		403SA32SA	● 3	40	15	170	80	32	9	29000	TS4SL	①TKY15W		
	B	4.0 5.0	BXD4000R201SA20SB	● 1	20	15	110	35	20	28	15000	TS4SL	①TKY15W	XDGT1550 PDOR-GOO
			252SA25SB	● 2	25	15	125	50	25	20	38000	TS4SL	①TKY15W	
			252SA25LB	● 2	25	15	170	80	25	20	38000	TS4SL	①TKY15W	
			322SA32SB	● 2	32	15	150	50	32	13	33000	TS4SL	①TKY15W	
			322SA32LB	● 2	32	15	200	80	32	13	33000	TS4SL	①TKY15W	
			403SA32SB	● 3	40	15	170	80	32	9	29000	TS4SL	①TKY15W	
BXD7000	A 0.8 3.0	BXD7000R251SA25SA	● 1	25	21	170	80	25	28	12000	TS5S	②TKY25D	XDGT2206 PDFR-GOO	
		321SA32SA	● 1	32	21	170	80	32	19	9500	TS5S	②TKY25D		
		402SA42SA	● 2	40	21	170	80	42	13	28000	TS5SL	②TKY25D		
	B	4.0 5.0	BXD7000R251SA25SB	● 1	25	21	170	80	25	28	12000	TS5S	②TKY25D	XDGT2206 PDFR-GOO
			321SA32SB	● 1	32	21	170	80	32	19	9500	TS5S	②TKY25D	
			402SA42SB	● 2	40	21	170	80	42	13	28000	TS5SL	②TKY25D	

Note 1) The maximum allowable revolutions stated above are based on ISO15641. However, it is not recommended that BXD cutters are used in excess of the revolutions stated in the Operational Guidance, Table 1 printed on page 1 of this brochure.

2) When using high revolution machining, please pay special attention to the balancing. The whole tool assembly should be balanced according to G6.3 based on ISO1960 quality grades.

● : Inventory maintained. ★ : Inventory maintained in Japan.

## Arbor type



## Set bolt

The following clamp bolts are supplied with each respective cutter.

Diameter	Set Bolt Order Number	Geometry	Geometry
Ø40	—	LS24H	①
—	Ø50	HSC08030H	②
Ø50, Ø63	Ø63	10030H	
Ø80	Ø80	12035H	
Ø100	Ø100	16040H	
Ø125	Ø125	MBA20040H	③

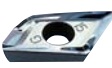

Light alloy	Cast iron	General steel	Stainless steel	Hardened steel
➔				

Type	Insert Corner	Order Number	Stock	Number of teeth	Dimensions (mm)								Weight (kg)	Max. Depth of Cut $ap$	Max. Allowable Revolution ( $min^{-1}$ )	Ramping Angle ( $^\circ$ )	Figure	Clamp Screw	Wrench	Insert		
					R	D1	L1	L7	L8	D8	W1	D9									D11	D12
BXD4000	A	0.4   3.2	BXD4000-040A03RA	□	3	40	50	18	5.6	M8	8.4	16	—	32	0.3	15	9	29000	1	TS4SL	①TKY15W	XDGT1550 PDFR-GOO
			-050A04RA	□	4	50	50	20	6.5	11	10.4	22	17	41	0.4	15	6	24000	2	TS4SL	①TKY15W	
			-063A05RA	□	5	63	50	20	6.5	11	10.4	22	17	50	0.7	15	5	21000	2	TS4SL	①TKY15W	
			-080A05RA	●	5	80	50	23	7	13	12.4	27	20	60	1.1	15	3	19000	2	TS4SL	①TKY15W	
			-100A06RA	●	6	100	63	26	8	17	14.4	32	26	70	2.0	15	3	16000	2	TS4SL	①TKY15W	
			-125B07RA	□	7	125	63	40	9	56	16.4	40	—	80	2.8	15	2	14000	3	TS4SL	①TKY15W	
			R08005CA	★	5	80	50	26	6	13	9.5	25.4	20	60	1.1	15	3	19000	2	TS4SL	①TKY15W	
			R10006DA	★	6	100	63	32	8	17	12.7	31.75	26	70	2.0	15	3	16000	2	TS4SL	①TKY15W	
	R12507EA	★	7	125	63	40	10	56	15.9	38.1	—	80	2.8	15	2	14000	3	TS4SL	①TKY15W			
	B	4.0   5.0	-040A03RB	□	3	40	50	18	5.6	M8	8.4	16	—	32	0.3	15	9	29000	1	TS4SL	①TKY15W	XDGT1550 PDFR-GOO
			-050A04RB	□	4	50	50	20	6.5	11	10.4	22	17	41	0.4	15	6	24000	2	TS4SL	①TKY15W	
			-063A05RB	□	5	63	50	20	6.5	11	10.4	22	17	50	0.7	15	5	21000	2	TS4SL	①TKY15W	
			-080A05RB	●	5	80	50	23	7	13	12.4	27	20	60	1.1	15	3	19000	2	TS4SL	①TKY15W	
			-100A06RB	●	6	100	63	26	8	17	14.4	32	26	70	2.0	15	3	16000	2	TS4SL	①TKY15W	
			-125B07RB	□	7	125	63	40	9	56	16.4	40	—	80	2.8	15	2	14000	3	TS4SL	①TKY15W	
			R08005CB	★	5	80	50	26	6	13	9.5	25.4	20	60	1.1	15	3	19000	2	TS4SL	①TKY15W	
R10006DB			★	6	100	63	32	8	17	12.7	31.75	26	70	2.0	15	3	16000	2	TS4SL	①TKY15W		
R12507EB	★	7	125	63	40	10	56	15.9	38.1	—	80	2.8	15	2	14000	3	TS4SL	①TKY15W				
BXD7000	A	0.8   3.0	BXD7000-050A02RA	□	2	50	50	18	5.6	9	8.4	16	14	41	0.4	21	9	22000	2	TS5SL	②TKY25D	XDGT2206 PDFR-GOO
			-063A03RA	□	3	63	50	20	6.5	11	10.4	22	17	45	0.5	21	7	19000	2	TS5SL	②TKY25D	
			-080A04RA	□	4	80	50	23	7	13	12.4	27	20	55	1.1	21	5	17000	2	TS5SL	②TKY25D	
			-100A05RA	□	5	100	63	26	8	17	14.4	32	26	70	2.0	21	4	14000	2	TS5SL	②TKY25D	
			-125B06RA	□	6	125	63	40	9	56	16.4	40	—	90	2.8	21	3	12000	3	TS5SL	②TKY25D	
			R08004CA	★	4	80	60	26	6	13	9.5	25.4	20	55	1.1	21	5	17000	2	TS5SL	②TKY25D	
			R10005DA	★	5	100	63	32	8	17	12.7	31.75	26	70	1.8	21	4	14000	2	TS5SL	②TKY25D	
			R12506EA	★	6	125	63	40	10	56	15.9	38.1	—	90	3.0	21	3	12000	3	TS5SL	②TKY25D	
	B	4.0   5.0	-050A02RB	□	2	50	50	18	5.6	9	8.4	16	14	41	0.4	21	9	22000	2	TS5SL	②TKY25D	XDGT2206 PDFR-GOO
			-063A03RB	□	3	63	50	20	6.5	11	10.4	22	17	45	0.5	21	7	19000	2	TS5SL	②TKY25D	
			-080A04RB	□	4	80	50	23	7	13	12.4	27	20	55	1.1	21	5	17000	2	TS5SL	②TKY25D	
			-100A05RB	□	5	100	63	26	8	17	14.4	32	26	70	2.0	21	4	14000	2	TS5SL	②TKY25D	
			-125B06RB	□	6	125	63	40	9	56	16.4	40	—	90	2.8	21	3	12000	3	TS5SL	②TKY25D	
			R08004CB	★	4	80	60	26	6	13	9.5	25.4	20	55	1.1	21	5	17000	2	TS5SL	②TKY25D	
			R10005DB	★	5	100	63	32	8	17	12.7	31.75	26	70	1.8	21	4	14000	2	TS5SL	②TKY25D	
			R12506EB	★	6	125	63	40	10	56	15.9	38.1	—	90	3.0	21	3	12000	3	TS5SL	②TKY25D	

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- : Non stock, made to order only

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 2) When using high revolution machining, please pay special attention to the balancing. The whole tool assembly should be balanced according to G6.3 based on ISO1960 quality grades.

## Insert

Cutter Type	Shape	Order Number	Class	Honing	Coated		Carbide	Dimensions (mm)					Geometry
					VP15TF	LC15TF	TF15	L1	L4	S1	F1	Re	
BXD4000		<b>XDGT1550PDFR-G04</b>	G F	●	●			22	16	5	1.5	0.4	
		<b>1550PDFR-G08</b>	G F	●	●			22	16	5	1.1	0.8	
		<b>1550PDFR-G12</b>	G F	●	●			22	16	5	0.7	1.2	
		<b>1550PDFR-G16</b>	G F	●	●			22	16	5	0.4	1.6	
		<b>1550PDFR-G20</b>	G F	●	●			21.7	16	5	0.2	2.0	
		<b>1550PDFR-G30</b>	G F	●	●			20	16	5	0.6	3.0	
		<b>1550PDFR-G32</b>	G F	●	●			20	16	5	0.4	3.2	
		<b>1550PDFR-G40</b>	G F	●	●			19	16	5	0.5	4.0	
		<b>1550PDFR-G50</b>	G F	●	●			18	16	5	0.4	5.0	
		<b>XDGT1550PDER-G04</b>	G E	●				22	16	5	1.5	0.4	
		<b>1550PDER-G08</b>	G E	●				22	16	5	1.1	0.8	
		<b>1550PDER-G12</b>	G E	●				22	16	5	0.7	1.2	
		<b>1550PDER-G16</b>	G E	●				22	16	5	0.4	1.6	
		<b>1550PDER-G20</b>	G E	●				21.7	16	5	0.2	2.0	
		<b>1550PDER-G30</b>	G E	●				20	16	5	0.6	3.0	
		<b>1550PDER-G32</b>	G E	●				20	16	5	0.4	3.2	
		<b>1550PDER-G40</b>	G E	●				19	16	5	0.5	4.0	
		<b>1550PDER-G50</b>	G E	●				18	16	5	0.4	5.0	
BXD7000		<b>XDGT2206PDFR-G08</b>	G F	□		★		30	22	6.35	2.0	0.8	
		<b>2206PDFR-G16</b>	G F	□		★		30	22	6.35	1.2	1.6	
		<b>2206PDFR-G20</b>	G F	□		★		30	22	6.35	0.8	2.0	
		<b>2206PDFR-G30</b>	G F	□		★		29	22	6.35	0.6	3.0	
		<b>2206PDFR-G40</b>	G F	□		★		27.5	22	6.35	0.9	4.0	
		<b>2206PDFR-G50</b>	G F	□		★		27	22	6.35	0.4	5.0	

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## Recommended Cutting Conditions

	Workpiece	Hardness	Insert Grade	Cutting Speed (m/min)	Feed per Tooth (mm/tooth)
<b>N</b>	Aluminum Alloy	—	<b>LC15TF TF15</b>	1000 (200—3000)	0.3 (0.1—0.5)
<b>S</b>	Tiysnium Alloy	—	<b>VP15TF</b>	40 (30—60)	0.1 (0.1—0.3)
	Heat-resistant Alloy (Inconel)	—	<b>VP15TF</b>	30 (20—40)	0.15 (0.1—0.2)
<b>M</b>	Stainless Steel	≤270HB	<b>VP15TF</b>	140 (120—160)	0.2 (0.1—0.3)
<b>P</b>	Mild Steel	≤180HB	<b>VP15TF</b>	180 (150—200)	0.15 (0.1—0.2)
	Carbon Steel · Alloy Steel	≤280HB	<b>VP15TF</b>	150 (120—200)	0.15 (0.1—0.2)
		280—350HB	<b>VP15TF</b>	140 (120—160)	0.15 (0.1—0.2)
	Hardened Steel	40—60HRC	<b>VP15TF</b>	70 (50—100)	0.1 (0.05—0.15)

Figures above are a guide for optimum general use. They may vary depending on machine rigidity, work clamping and length of tool overhang.

When using Ø20 shank type, set the table feed at under 0.05mm/tooth and maintain observation during cutting.

Please adjust the table feed when using long-shank type products. Please adjust the table feed when ramp machining (Recommended feed: 0.05mm/tooth under).



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